

New York Northeast Center for Agricultural and Occupational Health

Summary Annual Report
Fiscal Year 2013

NIOSH Center Grant
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Section I

Center Summary

The Northeast Center (NEC) is a NIOSH funded extramural Agriculture, Forestry and Fishing (AFF) Research Center, which is affiliated with the Bassett Healthcare Network in Cooperstown, NY. The mission of the NEC is to enhance the health of AFF workers by identifying priority health and safety issues and working with AFF communities and stakeholders to identify prevention solutions. The Center provides these services to an eleven state region that extends from Maine all the way to Maryland. Over the past year, NEC activities have largely focused on moving the six R01-type projects to the right of project logic models. The Center's evaluation team has also worked diligently to insure fidelity to project timelines and to share high impact outcomes with NIOSH and AFF communities. Center major projects are evenly divided between Research, Intervention/Prevention and Education/Translation. These projects and Principal Investigators represent considerable expertise in engineering, occupational medicine, public health, social science, evaluation and education. Several mini-grants have also been funded over the past year and have expanded NEC's knowledge of emerging issues and novel research and intervention methods. These efforts capitalize on long-established partnerships with agencies and other health research institutions in the Northeast, such as Harvard University, Pennsylvania State University, Yale University, the University of Massachusetts at Lowell, the University of Vermont, Farm Bureau, state departments of Agriculture, Labor and Health, the National Oceanic and Atmospheric Administration, the U.S. Coast Guard and the Sea Grant Program.

In addition to its NIOSH Center funding, the NEC has benefitted in 2013 from two additional NIOSH research grants, a R01 and a R21, both aimed at addressing tractor-related injury and fatality. The NEC also successfully leverages NIOSH support with other funding in excess of \$1.2M.

Center Aims and Priorities:

| Priorities | <i>Maximize Center Resources</i> | | <i>Research to Practice</i> | <i>Emphasize Impact</i> | |
|-------------------|--|--|--|--|---|
| Aims | #1-Improve Surveillance to identify priorities | #2-Focus on Vulnerable and High-Risk Workers | #3-Move proven prevention strategies into workplaces | #4-Reduce traumatic injuries and fatalities in Agriculture | #5-Reduce traumatic injuries and death in Fishing |

Relevance

AFF workers have a significantly higher risk of occupational death and injury than workers in other U.S. industries. However, addressing these issues in the Northeast is particularly challenging due to the considerable diversity in AFF work environments and populations. As a result, NEC activities have largely focused on identifying and monitoring risk factors, in order to develop multiple strategies for addressing them. In the area of agricultural safety and health, a surveillance system is being developed to capture both injury and fatality data from multiple health data sources. This information is being used to prioritize intervention and outreach activities and to strategically develop partnerships within the community that can help to address priority health issues and identify emerging issues.

In addition to surveillance, NEC activities have focused on different facets of the injury process, from education on risks, to interventions that mitigate risks (i.e. increasing access to safety products, working with manufacturers to improve safety designs and equipment, developing standards for safer working conditions, conducting on-farm safety audits, promoting the use of safety products, etc...), to strategies for improving outcomes should injuries or illnesses occur (i.e. first-aid training, case-management and treatment, provider occupational health training tailored to agricultural issues). Similar activities are also being conducted in the area of fishing and logging safety, with the aim of reducing injuries and illnesses and improving outcomes for those injuries and illnesses that do occur.

Key Personnel

| Name: | Role: | Phone: | e-mail: |
|-----------------------|-------------------------|---------------|----------------------------|
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Section II

PROGRAM HIGHLIGHTS

Center-Wide Activities

Over the past year, the NEC has made significant progress in fulfilling its specific aims and overseeing the core activities. In May 2013 and October 2013, the NEC Scientific Advisory Panel was convened for meetings in Washington DC. In September 2013 the NEC Fishing Advisory Panel met in New Bedford, MA. These meetings continue to be very valuable to NEC administration and researchers as an opportunity for ongoing advisement of current NEC projects and activities, as well as strategizing proposal development for the next funding cycle. In December 2013, the NEC annual meeting was held in Saratoga Springs, NY. Representatives from each of the six funded scientific projects, as well as four of the feasibility grant recipients, were in attendance. When asked to rate how helpful this annual meeting was in formulating their research plans for the next funding cycle, participants reported an average rating of 2.8 on a three-point scale (3="very helpful"; 2="helpful"; 1="not helpful").

Changes in Personnel

There have been no significant changes in NEC personnel in 2013.

Presentations, Outreach Activities and Publications

Over the past year, nine presentations have been made (or accepted for presentation in 2014) at national epidemiology, safety and health conferences. There have been six manuscripts published or accepted for publication in the peer-reviewed literature. See **Table 1. Scientific Project Outputs and Intermediate Outcomes** and **Table 2. Dissemination of NEC Project Results** at the end of this report for a detailed listing of publications and presentations.

Summary of Outreach Activities: An important component of NEC activities is safety training and outreach education. A group of NEC "regional trainers" are employed to provide safety expertise and support to farmers in a number of northeastern states. A total of 395 educational and outreach sessions have been conducted throughout the Northeast, reaching nearly 11,000 AFF workers. Many of these educational sessions were given in Spanish. Fifty on-farm safety surveys were conducted, reaching 192 members of the farm community. One-hundred twenty-three on-farm safety trainings were given for 1430 farm owners and their employees in English and an additional 223 on-farm safety trainings were given in Spanish, insuring the appropriate safety training of over 2,000 Spanish-speaking workers. Sixty youth safety

trainings were also conducted with over 1,000 farm youths in attendance. Eight logging classes trained 65 farmers and rural land owners in best safety practices. Thirty-three articles were published in nine agricultural magazines and on the NEC website. Through trade shows, on-farm activities and farmer contacts, personal protective equipment was supplied to 328 individual businesses in the industry and 78 farm workers were fit tested for respiratory masks. A fishing safety training session was provided for 31 fishermen and 8 members of Cornell's Marine Program on Long Island and ten fishermen participated in a subsequent 'Drill Conductor Safety Class'. Some of these activities were directly supported with NEC outreach funds and some leveraged with other funding sources.

Research Core

The New Surveillance Strategy for Farming and Forestry Injury Project

Analysis of Maine and New Hampshire data allowed researchers to become familiar with the nuances of each data source. For 2008 Maine data, a large percentage of agricultural cases could only be identified by visually searching text strings in the ambulance report data (69%). This method allowed researchers to capture specific mechanism of injury, however, few states retain the narrative text fields in the master datasets. External cause of injury codes were used to identify injury events in hospital data. Using this method, 148 unique injury events were identified, of these, 144 (97.3%) had the initial episode documented in only one of the three hospital files. The ED file had the largest number of these (119/144=82.6%), followed by the outpatient file (15/144=10.4%), and the inpatient file (10/144=7.0%). Only three injury events were found in both sources of data (ambulance reports and hospital data) where both records contained a farm/forestry variable. This underscores the importance of using several data sources.

Musculoskeletal Disorder Rates in Northeast Lobster Fishermen

This surveillance research project is designed to impact a national effort to understand regional variations in exposures and outcomes in commercial fishing. NIOSH has done exemplary work in the general fishing industry with the practical purpose of preventing fatalities, injuries and illnesses to fishermen. Until recently, however, denominators have not been reliably collected in this country. Even less information on injuries and illnesses was known. Consequently, NIOSH focused its resources and utilized federally managed fishery data to determine valid fatality rates for the first decade of the 21st century, information that allowed researchers and industry personnel to evaluate the expected impact of interventions.

The NEC is fulfilling a regional need for estimating injury and fatality rates among lobster fishermen; data that have not been previously captured by NIOSH, because it is mostly state regulated. This multi-year effort, specifically to quantitatively estimate the denominator population in man-hours, of the lobster-harvesting sector, complements NIOSH's on-going commercial fishing fatality surveillance. Data are being collected by phone once every three months from a cohort of 280 lobster boat captains. These phone surveys also allow lobstermen to report any acute injuries over the previous months. Data are also being collected in face to face interviews, from captains and crew members, once per year. In these interviews, researchers seek to quantify aches and pains that may be indicative of non-acute injuries and chronic musculoskeletal disorders.

Data collection is proceeding on schedule. Quarterly calls to the full cohort have now nearly reached the completion of two full years. In addition, 269 of the active 280 subjects in the cohort have been interviewed face-to-face at least once. Preliminary results support our hypothesis that the lobstering sector has a comparably low fatality rate, and point to specific body segments of individuals in the population that are associated with increased risk for injury. In many cases, qualitative data have already offered a valuable glimpse into important health and community concerns that lobstermen are facing. These outcomes are vital to shaping future work in reducing outcomes of injury and illness for lobster fishermen.

Intervention/Prevention Core

Farm Tractor Stability Systems

The leading cause of occupational fatalities on U.S. farms is farm tractor accidents, more than half of which involve tractor rollovers. While ROPs are extremely useful in preventing or reducing injury when a farm

tractor rolls over, the project researchers are investigating the human factors and engineering issues associated with preventing farm tractor rear and side overturns in the first place. To accomplish the project goals, the research team is close to completing a farm tractor simulator with a 6-axis motion base, a 360 degree visual display, and an 8000 series John Deere tractor cab. In the current quarter of the research, the simulator will be used to safely evaluate tractor operator behavior and perceptions when confronted with dangerous overturn or near-overturn scenarios. The researchers are also in the process of evaluating tractor operator visual scan patterns in a natural setting to determine the best location to mount a stability display system (tractor operator interface) that will be developed in later tasks. The interface will later be safely evaluated in the farm tractor simulator under rollover and near rollover scenarios to determine the optimal type of information to give operators who are in danger of rolling their tractors.

Social Marketing of Machinery Safety Shields

Machinery entanglement incidents are unfortunately a relatively common cause of farm fatalities and serious injury in the Northeast. Detailed fatality data for New York and Pennsylvania (representing 66% of the Northeast farm population) indicate that machinery entanglement fatalities are among the top three causes of death (Harshman, 2009; NYCAMH, 2010). Fortunately, the installation of power-take off (PTO) shielding can considerably reduce, if not eliminate the risk of injury or death from PTO entanglements.

Using an intervention framework that has proven successful for increasing the installation of ROPS on unprotected tractors, project researchers have laid the groundwork for launching a PTO social-marketing campaign in NY. A telephone survey conducted during the first year of the project suggested that 90.2% of PTO drivelines in New York are adequately shielded. To assess the accuracy of this survey and confirm the proportion of adequately shielded PTO drivelines, a series of 211 on-farm audits were completed. Audits began in the end of year one, and were completed at the beginning of year two. In total, 1,470 implements were examined during these audits; only 57% of the PTO drivelines were adequately shielded. In addition to on-farm audits, year two activities included conducting focus groups with New York farmers to identify favorable messages to be used in the social-marketing campaign. Researchers are currently working to finalize the top four messages and will begin the PTO shielding campaign in the fall of 2014.



2013 social marketing ad promoting PTO shielding.

Education/Translation Core

On-Line Tool for Designing Ventilation Systems to Reduce Manure Pit Entry Risk

In 2013, the research team made significant inroads towards development of the user-friendly on-line tool for designing manure pit ventilation systems. Design and installation of the designed pits greatly reduces worker exposures to toxic and asphyxiating gases when entering these pits. The interfacing pre-processing and post-processing software which allows the on-line tool user to input project data to access ventilation system performance data from the main simulation program have been developed and alpha-tested. Work continues in 2014 to incorporate a wider range of manure pit configurations into the on-line tool. Beta testing is planned for early 2014 and launching of the on-line tool is anticipated in mid-2014.

Northeast Fisheries Winch Safety Improvement Project

A pre-piloted survey tool was used to collect data in Year 2 (Fiscal 2013) from 54 captains in the ports of Gloucester and New Bedford in Massachusetts, and Point Judith in Rhode Island. Although, project researchers had hoped to survey 100 captains, the short-fall is likely related to fishing regulations and catch

limits that have reduced the number of active fishing vessels in New England in the last two years. However, the 54 surveys that have been collected have allowed project researchers to learn a great deal about common winch configurations utilized in the Northeast fishing industry.

In particular, results of the survey show that 100% of those surveyed had winches that were hydraulically powered, 37% were of the radial piston type, but fully 30% had direct drive winches some of which were the "old" chain and sprocket mechanism. Of the 89% of survey respondents who reported having a PTO (shut-off switch) on board, 39% reported that these shut-off switches were more than 1 arm's length away from the winch operator, thus not ensuring immediate winch shut-down capability in the event of an accident. When asked about guiding wire onto the winches, 35% reported that the crew manually guides wire while 65% reported that manual guiding is not their practice, and this percentage squares with the 63% who report that they use some form of administrative protocol to keep crew members away from the winch while it is operating.

At the same time, 90% of the captains reported that they do not employ hydraulic level winders on their vessels. Those vessels with winches mounted on the pilot house deck (11% of the study respondents), and that would be characteristic of the larger vessels (>75ft), can effect a level wind by maneuvering the boat. In summary, 89% of respondents agreed that a PTO would improve safety while 76% agreed that a safe level wind system would improve safety on deck. We are planning focus groups for year 3 to gain additional information on the level of interest in and design preferences for PTO switches and hydraulic level winders.



Direct Drive Configuration (chain and sprocket)



Radial Piston (with manual guide bar)

Evaluation Core

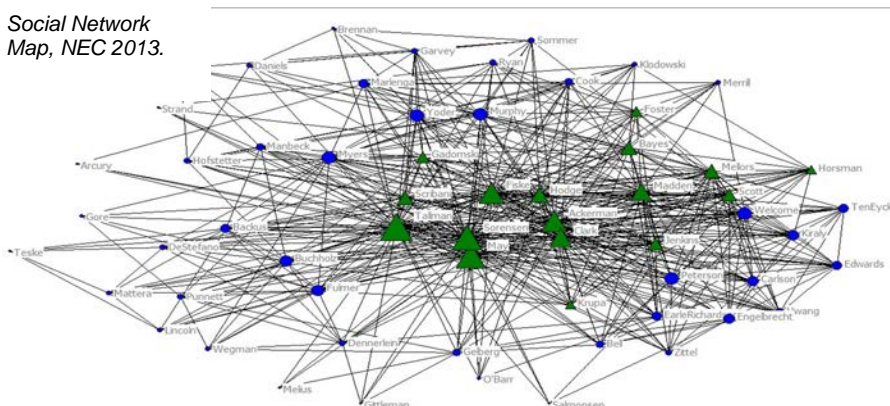
Center Evaluation

Most noteworthy accomplishments for the Evaluation Core in 2103 include: 1) maintaining clear logic models for the NEC and individual R01 projects; 2) tracking of all projects (outputs, impacts, and progress relative to timeline) (this process has identified one project needing particular attention due to changes in strategy or substantial deviation from the timeline); 3) measuring collaboration and relationships between and among center staff/administration and extramural partners is ongoing using yearly social network analysis (SNA); 4) presenting the SNA method at the American Evaluation Association meeting as a novel way to measure trans-disciplinary collaboration, 5) collaborating with other AFF Centers on evaluation methods and outputs, 6) structuring evaluation methods for NEC Outreach programs, and 7) keeping the scientific project PI's, NEC administration and the Scientific Advisory Panel up to date regarding evaluation results pertaining to NEC activities.

For the 2013 SNA survey, an 88.5% response rate was achieved (54/61 subjects responded). Additions to the roster included the Tractor Stability project, advisory board member changes, and ROPS program expansion into other states. Comparing the 2012 map to the 2013 map, the network has expanded and become more integrated. Many more connections among the fishing group, with ties to other disciplines (now at the left hand side of the map). Overlap between fishing and agriculture (ROPS) groups. There are a larger number of ties and notable changes in the sizes of some nodes throughout the network, indicating a higher level of degree centrality for those nodes. The network is moving towards the desired “wheel” or “circle” shape, as demonstrated in the map below.

This trans-disciplinary approach to program evaluation was presented by Melissa Scribani in a talk titled “Measuring collaboration: a social network analysis” at the American Evaluation Association Annual meeting in Washington, D.C. on 10/18/13.

*Social Network
Map, NEC 2013.*



The following rubric was presented by the evaluation core at the NEC annual meeting in December 2013 to emphasize focus on intermediate outcomes. This model was well received.

| | RISK | COST | IMPACT | INNOVATION |
|---------------------|--|---|---|--|
| On-line Tool | Exposure to hydrogen sulfide*, CO ₂ , ammonia, explosive gases, and decreased O ₂ *(d/t increased use of gypsum) | Multiple fatalities in one incident because rescuer succumbs. Prior software was expensive. Tool allows user to avoid site license fee. | Prior work published in 6 papers. ANSI/ABAE standard now moving online for manure pit ventilation | Allows end user to access software in the Cloud. User friendly and will work for just about any configuration. |
| Lobstermen | Lobster line entanglement. Back, shoulder and knee injury. | Shoulder, back and knee MS injury being documented. | Lobstermen are state licensed and not included in federal data. | Lobstermen not studied before. Validated Nordic MS Qu used. |
| Shields | Machinery entanglements d/t unshielded PTO can lead to amputations, and fatality - One of the top three causes of death on a farm | Amputations and fatality lead to lost farms and productivity. Thru BareCo can offer shield at lower price. | Increase # of shielded PTO and decrease risk of injury. Pre and post shield installation photos. | FFA contest to sell/install shields? Include installation in price of shield. |
| Winch | Amputations, entanglements and fatality. Vessel instability or sinking. Large crew turnover, wood boats, old boats, where winch is located | Majority of boats do not have shut off within arm's length. Ports in the red. Insurance costs, some mandating water safety training. | Captains do care, but MLW is expensive. | Multi-component prevention strategy (education, outreach, multiple shut off options, paddle bar). Cameras on boats to monitor behavior |

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|--------------------------|--|--|--|---|
| | is important. | Paddle bar on top of winch drum to shut it off costs about \$2K. | | change as well as let captain see what crew is doing. |
| Surveillance | Data needed assess risk and trend injury. E coding of external cause of injury or location codes or free text captures risk and injury data. | Compared to doing surveys, this is a lower cost method of collecting data by using existing electronic data. | NIOSH interest. Outpatient data in ME added 17 cases to discovery technique. Trending using existing data. | Bayes data analysis to estimate error rate. Streamlined multiplier possible. Use for other types of injury. |
| Tractor Stability | 300,000 tractors in use. 100 deaths/year. 3x shorter life for each hour of tractor use. Rear and side overturn. | \$2.5 million per death. \$100 per tractor tilt detector. OEM buy in will lead to large cost savings. | Driver alerting system. Rear overturn prevention by mechanical intervention. DOD translation. | Tractor driving simulator –tilt cab. Use existing eye and face tracking technology on tractors. |

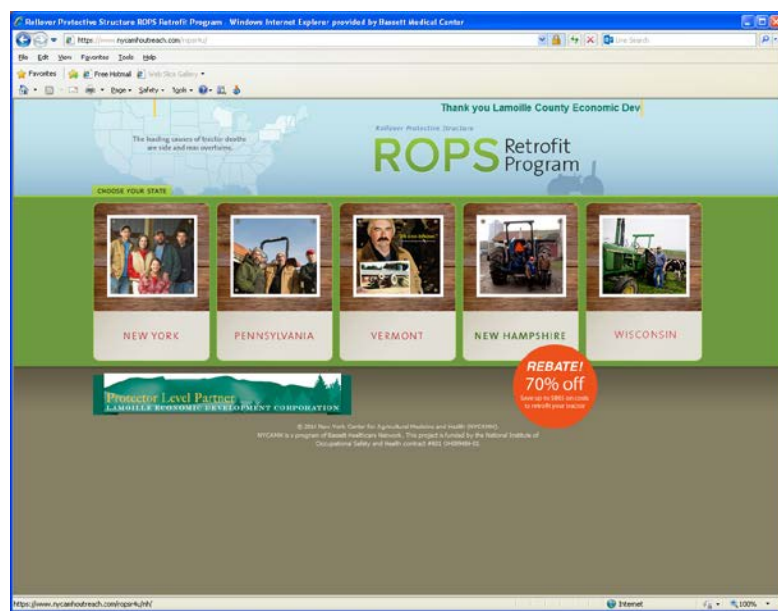
NEC-Related Activities

Though not supported as part of the 2011-2016 NEC funding, two other NIOSH funded projects are functioning as part of the overall NEC initiative and should be mentioned to more clearly describe the overall NEC effort at the New York Center for Agricultural Medicine and Health.

Tractor Rollover Protection Social Marketing

Though no longer funded with NEC dollars, the Northeast ROPS initiative continues to be active, in part with NIOSH R01 support. In NY, the project has continued to benefit from support by the NY legislature. In 2013, the number of retrofits installed through the NY ROPS program came just short of 1,200, insuring the safety of as many previously at-risk farm families. Follow up survey data has enabled NEC to identify at least 14 cases in which fatalities or serious injuries have been prevented. Economic analysis of this program demonstrates that it is clearly cost effective.

Similar programs have also been established in PA, VT and NH. These are progressing with variable success based upon local funding availability. In March 2013, the NEC also assisted with the launch of the Wisconsin ROPS program, which will take advantage of the project hotline and administrative resources that are available in NY, VT, NY and PA. There is active interest in establishing ROPS programs in other states, as well.



NEC ROPS Retrofit Program website homepage.

Generating Structural and Financial Support for Tractor Retrofitting Initiatives

This new R21 research project will begin to address the issue of cost as it relates to the installation of rollover protective structures (ROPS) on unprotected tractors. It involves identifying key stakeholders in a tractor rollover intervention effort. To date key opinion leaders in this field have been identified and a social network map constructed, which notes the individuals/organizations with highest levels of interactivity and greatest access to financial and structural resources. Interviews have already been conducted with individuals at these organizations to assess ways in which both stakeholders and state-based retrofitting initiatives can develop mutually beneficial partnerships. A very successful fall 2012 meeting with industry, Farm Bureau and other representatives affirmed broad support for a national ROPS initiative and willingness to form a committee to advance this goal. Following this meeting, a National Tractor Safety Partnership (NTSP) was created. Members of the NTSP come from organizations identified in the social networking analysis as 'opinion leaders' and include manufacturers, advocacy groups, insurers, dealerships and government representatives. The initial NTSP meeting was held at Farm Bureau Headquarters in Washington, DC in June, 2013. At this meeting, the group outlined a strategy for implementing a National ROPS program. As discussed by the group, this strategy will involve convening roughly 60 agricultural stakeholder organizations at a Whole-System-in-the-Room Event in 2014 in order to leverage the resources of many organizations in building a National ROPS Initiative.

Table 1. Scientific Project Outputs and Intermediate Outcomes

| Project | Outputs | Outcomes |
|---------------------|---|--|
| On-line Tool | Demonstration of on-line simulator tool; Rectangular and square shaped is completed User inputs manure pit configuration on windows-based platform Alpha testing is underway | Trainer's manual will launch this year. User's manual slated for 2014. Provide guideline at beginning – parametric study to optimize (only for entry pits). One abstract published. Paper in review: Murphy, D.J, Manbeck HB. Confined Space Manure Storage and Facilities Safety Assessment. <i>Journal of Agricultural Safety and Health</i> . |
| Lobstermen | Rough estimates of exposure, FTEs so far making progress towards denominator. Updated questionnaire form. Have learned that captains are older, are more experienced and also susceptible to right shoulder injuries. | <i>Short term:</i> Estimate total occupational exposure of lobstering and occupationally -related morbidity and mortality for lobstering. <i>Long term:</i> Knowledge of injury and fatality rates in lobster population; potential for prevention. The |

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| | Sternmen are younger, less experienced and have more low back pain. More knee injury noted than expected because knees are used to brace body by wedging on edge of boat to maintain stability. Captain's exposure depends on sternman showing up for work. Healthy worker effect examined. | relationship between work and injury outcome will be clarified. Begin to explore specific intervention ideas based on likely impact and likely success, e.g. foam padding for knee. Re-examine whole operation of hauling in lobster. |
| Shields | Worked with professional advisory board; established inaccuracy of telephone survey to determine shielding rates; conducted farm audits (n=211) in NYS only to look at 1,500 implements in order to identify shielding rate (57% PTO shielded by audit vs. 95% shielded by phone survey). Identified barriers to shielding, identified the "ideal shield" through BareCo | BareCo PTO shield testing - \$60 each Two papers completed: Chapel et.al. "Validation of self-reported power take-off shielding and comparisons of shielding for various farm implements using on-site farm audits." Weil et.al "It's tough to tie your shoes while you're walking." A qualitative analysis of power take-off driveline shields: Barriers and motivators for shield use for New York State farmers". 2014 ISASH and SHARPS presentations. |
| Winch | Completed qualitative study of 54 captains which is a baseline survey to identify barriers to intervention (cost, placement and diversity of winch equipment). Majority of all boats had PTO switches. A winch on top of pilot house is a stability hazard. | Article published in Commercial Fisheries News. Backus, A. Winch safety study identifies crew hazards. January 2014 Vol.41, No.5. |
| Tractor Stability | Study of roll and pitch perception and risky behavior using a tractor driving simulator. Turnovers in tractor research are being translated for use in the prevention of turnovers of bomb diffusers. Working with DOD and Volvo. | Two papers. IEEE, ASABE 2014 abstract. Open source software. 360 degree tractor driving simulator. \$100 tilt detector. Open access to share development idea being used by Volvo research and development (collaboration with industry). |
| Surveillance | Data received from ME, NH, NY, NJ (death data). Active requests in VT, MD, NJ (EMS/hospital). Case matching complete in ME and NH between EMS and hospital data. Outpatient data in ME added 17 cases (only 2 were found in other data sources). Sensitivity/specificity/ positive predictive power of farm location check-box | First paper published in Agromedicine. One in progress. Presented study design and preliminary results at APHA meeting Nov 2013. Sharing surveillance methodology with state health departments, other agencies Developed multiplier to correct observed injury rates ME 2008 sens 25%, specificity 99.99%. NH 2008 sens.14%, spec 99.99% |

Table 2. Dissemination of NEC Project Results

| Category | Details |
|-------------------------|--|
| Published Papers | <p>Sorensen JA, Brewer DD, Wyckoff L, Horsman M, Scott Erika, May JJ.(2013). Building Safety Partnerships Using Social Network Analysis. Social Marketing Quarterly. 19(2):67-75.</p> <p>Fiske T, Earle-Richardson G. (2013). Farm Safety Research to Practice: The Long Road from the Lab to the Farm. J Agromed. 18:11-17. PMID 23301886</p> <p>Hodge BD, Gaetano DE, Ackerman SA, Jastremski CA, Fulmer T.(2013). Nurses in Occupational Practice in Agricultural and Rural Communities in New York State: Providing Health and Safety Education and Prevention Services. In C.A.Winters & H.J. Lee (Eds.), Rural Nursing : Concepts, Theory, and Practice Fourth Ed. Chapter 27 (pp. 421-437). New York, NY: Springer Publishing Company.</p> <p>Scribani M, Wyckoff S, Jenkins P, Bauer H, Earle-Richardson G. Migrant and seasonal crop worker injury and illness across the Northeast. Am J Ind Med. 2012 Dec 27. doi: 10.1002/ajim.22150. [Epub ahead of print] PubMed PMID: 23280646</p> <p>Sorensen JA, Jenkins PL, Bayes B, Purschwitz MA, May JJ. Increases in Rollover Protective</p> |

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| | <p>Structure Pricing from 2006-2012 and the Impact on ROPS Demand. J Agri Saf & Health. 19(2): 115-124. PMID 23923731</p> <p>Yoder M, Sorensen JA, Foster F, Myers M, Murphy D, Cook G, May J, Jenkins P. (2013). Selecting Target Populations for ROPS Retrofit Programs in Pennsylvania and Vermont. J Agri Saf & Health. 19(3):175-190.</p> |
| Article | <p>Winch Project: Article published in Commercial Fisheries News. Backus, A. Winch safety study identifies crew hazards. January 2014 Vol.41, No.5</p> |
| Paper in Review | <p>Online Tool Project: Murphy, D.J. and H.B. Manbeck. Confined Space Manure Storage and Facilities Safety Assessment. Journal of Agricultural Safety and Health</p> |
| Papers in Progress | <p>Surveillance Project: Maine Farm and Forestry Cases from 2008, merging PCR to hospital records.</p> <p>Shields Project: R. Weil, P. Mellors, T. Fiske, J. Sorensen. "It's tough to tie your shoes while you're walking." A qualitative analysis of power take-off driveline shields: Barriers and motivators for shield use of New York State farmers.</p> <p>David Chapel BS, Julie Sorensen PhD, Todd Fiske JD, Sherry Wyckoff MS, Erin Madden, Rebecca Weil, Patrick Mellors BS, Paul Jenkins PhD. Validation of self-reported power take-off shielding and comparisons of shielding for various farm implements using on-site farm audits.</p> |
| Projected Publications and Deliverables | <p>Online Tool Project: On-Line Simulation Package for Designing Ventilation Systems for Confined-Space Manure Pits (2014).</p> <p>Standards: Revision of ANSI/ASABE 607, Ventilating Manure Pits to Reduce Entry Risk (2015-2016). Extension Publications: Users Manual for Designing Manure Pit Ventilation System using SWFS (Q2, 2014). Extension Fact Sheets (Q4, 2014).</p> |
| Legislative Materials | <p>Evaluation and Administrative Cores: Contributed to a collaborative Ag center-wide Capitol Hill leave-behind document promoting the AFF program: provided summary of impact and cost benefit from the NEC multi-state ROPS program.</p> <p>Developed NEC-specific Capitol Hill leave-behind document: two pages highlighting benefits and impacts of the NEC and its scientific projects.</p> |
| Presentations | <p>Evaluation Core: Scribani M, Gadomski A, Tallman N, May J. Measuring collaboration: A social network analysis. American Evaluation Association Annual meeting, Washington, D.C. 10/18/13.</p> <p>Online Tool Project: Presentation at SolidWorks World 2013 in Orlando, FL, January 21 to 23, 2013 by Dan Hofstetter, H.Manbeck, V. Puri and DJ Murphy. "Confined Space Ventilation Modeling Using SolidWorks Flow Simulation" Hofstetter, D.W., Manbeck, H.B., Puri, V.M., and Murphy, D.J., 2013. Manure Pit Ventilation Modeling using <i>SolidWorks</i> Flow Simulation. Presented at NABEC 2013, June 16-19, 2013, Altoona, PA. NABEC Poster No. 13-039. Hofstetter, D.W., Manbeck, H.B., Puri, V.M., and Murphy, D.J., 2013. CFD Simulation of Manure Pit Ventilation using SolidWorks. Presented at the 2013 ASABE Annual International Meeting, July 21-24, 2013, Kansas City, MO. ASABE Poster No. 1621753</p> <p>Surveillance Project: Erika Scott. New surveillance strategy for farming and forestry injury. American Public Health Association, Boston, MA, 11/2/13.</p> <p>Shields Project (planned presentation): Julie Sorensen. Abstracts accepted for presentation: ISASH International Society for Agricultural Safety and Health. 6/22-26/14. SHARPS 10/19-22/14</p> <p>Tractor Stability: K. Swanson, A. Brown, S. Brennan, C. LaJambe. "Extending Driving Simulator Capabilities Toward</p> |

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| | <p>Hardware-In-The-Loop Testbeds and Remote Vehicle Interfaces", IEEE IV 2013 Environment Perception and Navigation for Intelligent Vehicles, June 23, 2013, Gold Coast, Australia.</p> <p>Lobstermen Project: Scott Fulmer. Preliminary analysis results were presented at the bi-annual UMass-UConn Occ Health Symposium in May, 2013.</p> |
| Media Coverage | <p>Online Tool: Telephone interviews and one live interview with media outlets including newspapers and NPR.</p> |